Control unit IndraDrive

Commissioning
Linear axis LDx with IndraDrive control unit

Imprint:

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You are going to increase the process reliability of your production and achieve best machining results – to the customer's complete satisfaction.

SCHUNK products are inspiring.

Our detailed assembly and operation manual will support you.

Do you have further questions? You may contact us at any time – even after purchase. You can reach us directly at the mentioned addresses in the last chapter of these instructions.

Kindest Regards,

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1 About this manual

1.1 Purpose/validity

This manual is part of the drive control unit IndraDrive and describes the safe and proper start up of the linear drive LDx.

1.2 Applicable documents (on CD-ROM)

You can find the following documents on our homepage:

Document	Purpose
Catalog	Technical data and application parameters for the module and information on accessories. The respective latest version is valid
Assembly and operating manuals for linear motor drives	Detailed information about assembly, adjustment and start-up of linear motor drives.
Manual and references for Control unit IndraDrive	Detailed information about assembly, adjustment and repair of the Control unit IndraDrive.
General terms of business	Including notes on the warranty.

Tabelle 1

1.3 Symbols inthis manual

To give you quick access to information, the following symbols will be used in this manual:

Symbol	Meaning
⚠ DANGER	Dangers for persons. Nonobservance causes death or serious injuries.
⚠ WARNING	Dangers for persons. Nonobservance can cause death or serious injuries.
⚠ CAUTION	Dangers for persons. Nonobservance can cause slight injuries.
❶ NOTICE	Information on avoiding material damage.
✓	Prerequisite for a handling instruction.
➜	Handling instruction, also measures in a warning or note.
1. 2.	Step-by-step handling instruction. ➜ Observe the order.
< >	Menus and menu items

Tabelle 2

2 Basic safety notes

2.1 Intended use

The module is intended for installation in a machine. The requirements of the applicable guidelines must be observed and complied with.

The module may be used only in the context of its defined application parameters.

Any other use or use exceeding that specified is an infringement of use for intended purpose. The manufacturer bears no liability for damage resulting from such use.

2.2 Environmental and operating conditions

➔ The module may be used only in the context of its defined application parameters (see catalog and applicable documents).

➔ Make sure that the environment is free from splash water and vapors as well as from abrasion or processing dust. Excepted are modules that are designed especially for contaminated environments.

2.3 Controlled production

The module represents the state of the art and the recognized safety rules at the time of delivery. However, it can present risks if, for example:

- The module is not used in accordance with its intended purpose.
- The module is not installed or maintained properly.
- The EC Machinery Directive, the VDE directives, the safety and accident-prevention regulations valid at the usage site, or the safety and installation notes are not observed.

2.3.1 Protective equipment

➔ Provide protective equipment per EC Machinery Directive.

2.3.2 Constructional changes, attachments, or modifications

Additional drill holes, threads, or attachments that are not offered as accessories by SCHUNK may be attached only with permission of SCHUNK.

2.4 Personnel qualification

The assembly, initial commissioning, maintenance, and repair of the Control unit may be performed only by trained specialist personnel.

Every person called upon by the operator to work on the module must have read and understood the complete Assembly and Operating Manual, especially chapter 2 "Basic safety note". This applies particularly to occasional personnel such as maintenance personnel.

2.5 Safety-conscious working

➔ Avoid any manner of working that may interfere with the function and operational safety of the Control unit.

➔ Observe the safety and accident-prevention regulations valid at the usage site.

3 Commissioning

3.1 Required equipment

The following equipment/requirements are necessary for commissioning a drive with IndraDrive:

✓ a fully installed drive with an IndraDrive drive control unit (for connection schematics, see chapter "4")

✓ PC with network connection

✓ IndraWorks operating software (from Version 08Vxx) installed on PC

✓ Ethernet (Patch cable) PC connection cable - IndraDrive (order no. 329 962)

✓ Commissioning CD with the motor parameters and the files for parameter selection.

3.2 Commissioning tasks

⚠ DANGER

Danger to life due to electric shock!

Touching live parts can cause death.

➜ Only professional electricians may carry out work on electrical systems and equipment under compliance of the rules for working with electrical systems..

🛈 NOTICE

Damage to the guided slides or guide rail is possible!

Activating the "Automatic set up of the control circuit" command can lead to a crash of the guided slide.

➜ Under no circumstances activate the automatic set up of the control circuit for motors.

---

1. Wire drive control unit IndraDrive to higher order controller in accordance with the connection schematics.
   (siehe Kapitel 4, Seite 19)

2. Create connection between PC and controller.

3. Start IndraWorks on PC.

Note

Operation of IndraWorks is explained in the help menu of the program.

3.2.1 Loading motor parameters

1   In the main window of IndraWorks, select <View> ➜ <Project
    Explorer>.
    The Project Explorer opens.
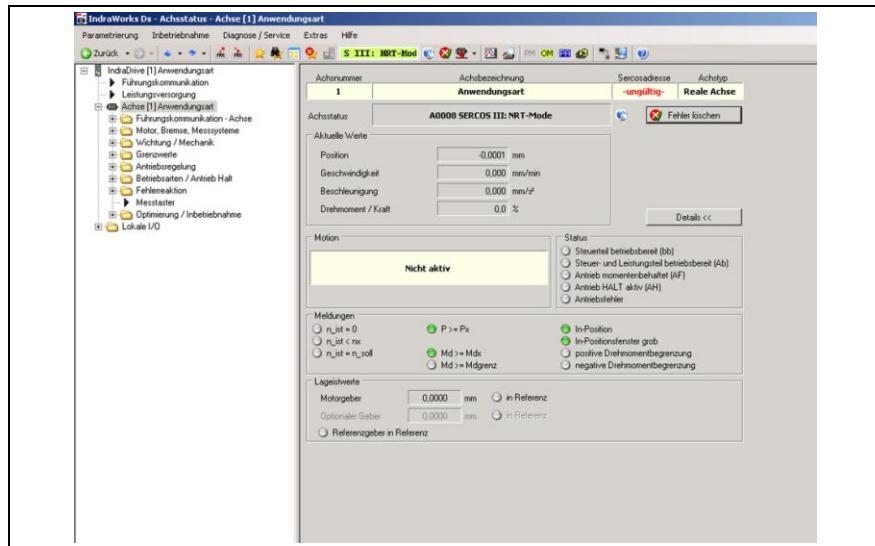
Fig. 1 Project Explorer
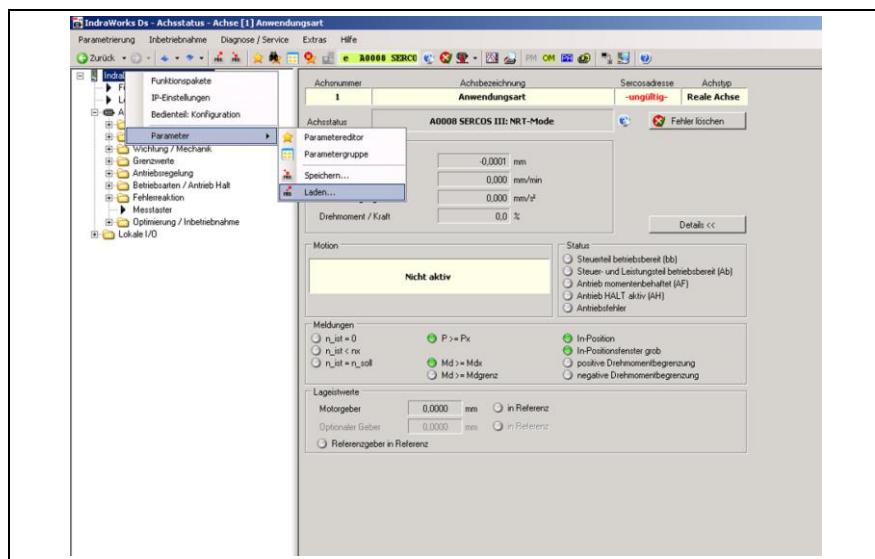
Fig. 2 Select linear motor type

2.   Select <IndraDrive> with right mouse button and then in the
     context menu <Parameter handling> ➜ <Import>:
     The dialog boxappears:
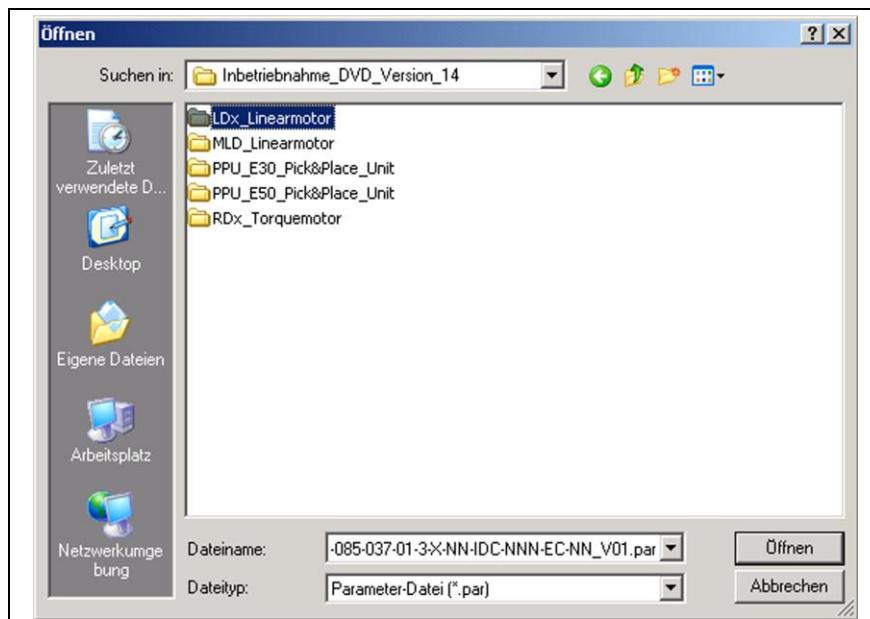
Fig. 3 Import motor parameters

3. Select file <motor parameter> on the commissioning-DVD.

4. Select the appropriate motor parameter file name from the description key and the mapping file linear-drive motor.

5. Select the folder of the linear motor types in the dialog box.

6. Select desired motor parameter file in the next dialog box and open it.
   The motor parameters are loaded.

Fig. 4 Load motor parameters

3.2.2 Starting field bus

1. Configure field bus interface in accordance with IndraDrive manufacturer documentation and control cabinet documentation.

2. Connect and start field bus.

3. Implement and check the wiring for controller enable, stop, reference switch and limit switch, depending on the field bus interface.

3.2.3 Selecting operating mode

> ## ⚠ WARNING
>
> **Risk of injury!**
>
> **An improperly set operating mode can lead to undesired drive movement.**
>
> ➔ Under no circumstances set the operating modes "Torque control" or "Speed control"
> ➔ Activate the drag fault monitoring and configure it sensibly

➔ Switch the control unit into the operating mode (phase 4).

In the standard control display on drive control unit IndraDrive `BB` will be displayed.

3.2.4 Testing measuring system

1. In the tree view of the project Explorer, select <IndraDrive> ➔ folder <axis>.
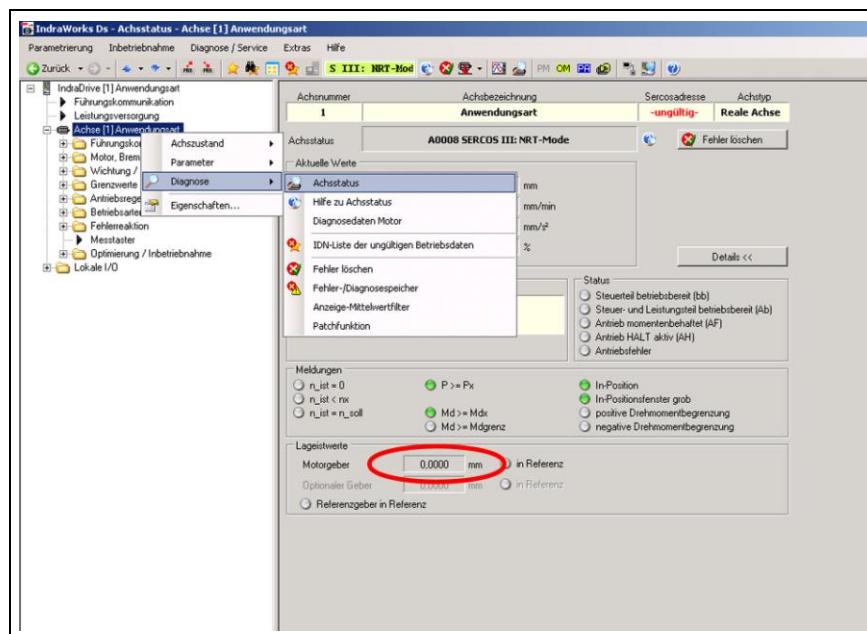
Fig. 5 checking status

2. Right click <Type of application> and then select <Diagnostics> from the resulting context menu ➔ Select <Status>..
   The window for the <Status> folder will open.

Check and activate the pneumatic brake (optional) check and activate

> ⚠ **NOTICE**
>
> **Damage to the linear motor axis possible!**
>
> Guide blade carrier and pneumatic holding brake can be damaged by forcible displacement of the carriage.
>
> ➔ Do not move the guide blade carrier or carriage with force during active holding brake.
>
> ➔ Use only low-power to examine the function of the pneumatic holding brake of the carriage.

1. Try to move the carriage careful by hand during holding brake.

2. Apply 24-V power supply to the brake valve.
   The pneumatic brake (optional) is activated.

Check display and scaling of the measurement system

1. Move the carriage by hand.
   There should be no leaps in the display "position" (see the red mark in Fig. 5 page 6).

2. Apply a Scale (about 10 cm) on the guide blade carriage and move carrier along the scale.

3. Compare the measured travel distance with the display of the actual position.

3.2.5   Control loop monitoring
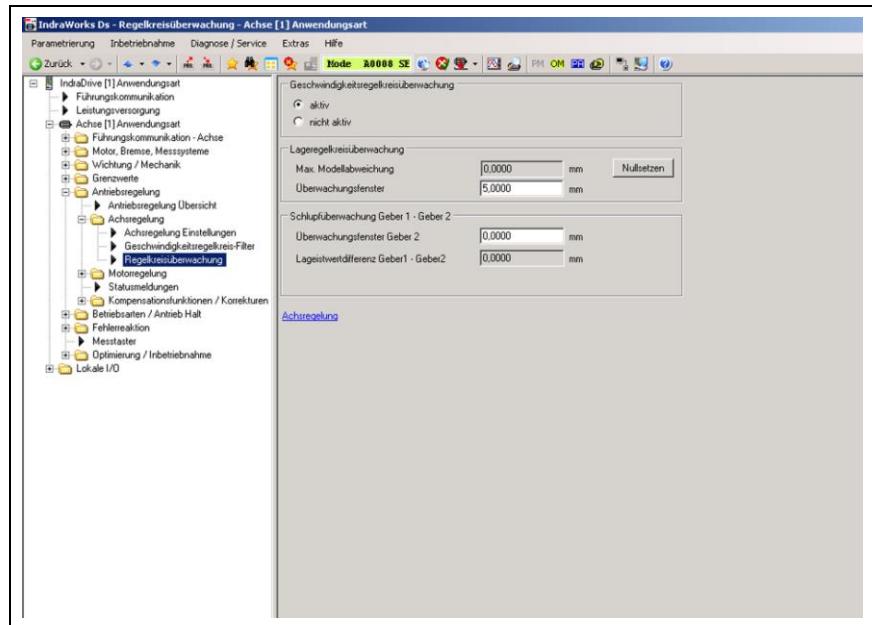
Fig. 6 control loop monitoring

1. In the tree view of the project Explorer, select
    <IndraDrive> ➔ <Motion> ➔ <Axis> ➔ <Control> ➔ <Axis ➔
    control> ➔ <control loop monitoring>
    The dialog box <Control loop monitoring> appears:

🛈 NOTICE

Damage to the carriage and guide blade carrier is possible!

A disabled or set too high loop monitoring window can lead to a crash
of the carriage.

➔ Set useful control loop monitor parameters.

---

2. Activate <Speed control loop monitoring> in the option field.

3. Parameterize the position control loop monitoring.

3.2.6 Connecting Control unit IndraDrive to the power supply

➔ Switch on power at the control switch cabinet (power supply connection 380 V).

➔ AB appears on the display of the standard operating field of the Control unit IndraDrive which indicates that the Control unit IndraDrive is connected to the power supply

3.2.7 Release of the controller (RF)

Note

The control release can be linked up by software or hardware depending on the field bus system.

1. Link up with control release (RF).
2. Link up with „Hold".

On the display of the standard panel at the IndraDrive AF or hold AH appears.

3.2.8 Set reference controller

This section is only required if an incremental measuring system is used.

1. In the tree view of the project Explorer, select <IndraDrive> ➔ <Motion> ➔ <Axis>➔ <Create position data reference> ➔ <Data reference motor encoder>. The dialog box <Data reference motor encoder> appears:
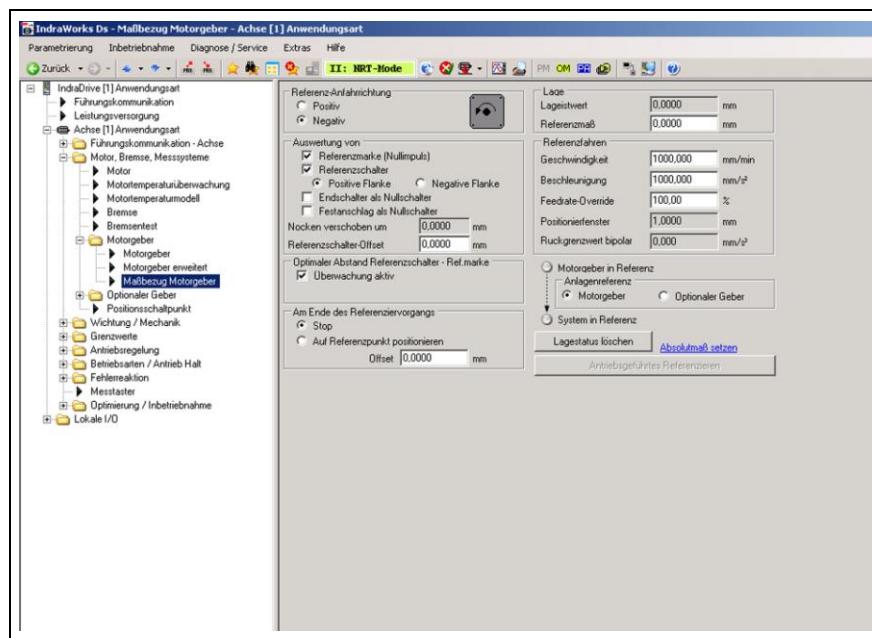
Abb. 7 Measurement motor encoder - incremental

2. Move the guide carriage with Field bus slowly in both
   directions.

3. Test and parameterize the direction, speed and
   acceleration.

3.2.9   Set absolut measurement

These chapter is only required, if an absolute measuring system is used (TTK 70)

1. In the tree view of the project Explorer, select <IndraDrive> ➔ <motor, brake measuring system> <motor encoder> <assign measurements>
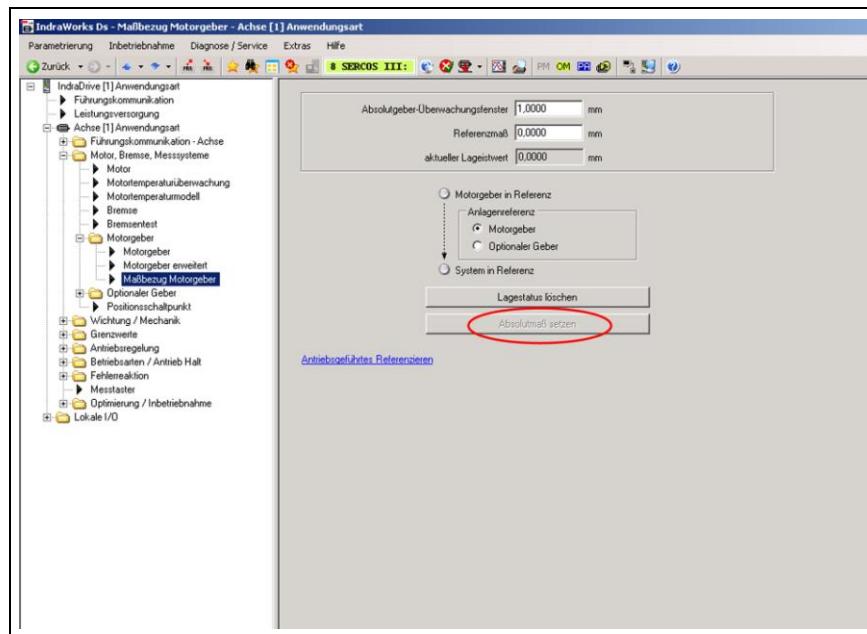
Fig. 8 set absolute measurement

2. Bring the axis in the desired position and click the button < Set absolute measurement >.

3. A desired shifting of the offset can be entered in the box <reference measurement.

Note
Perform Parameterization according to the functional description in the documentation of the drive controller Rexroth IndraDrive.

3.2.10   Mounting the drive

1. Mount all moving modules (moving mass).

2. Set the end switch

3. Move drive to the intended position.

3.2.11   Set the parameters for the software controlled limits

1. In the tree view of the Project Explorer, select <IndraDrive>
   ➔ <Motion> ➔ <Axis> ➔ <Travel limits>.
   The <Travel limits> window will open:
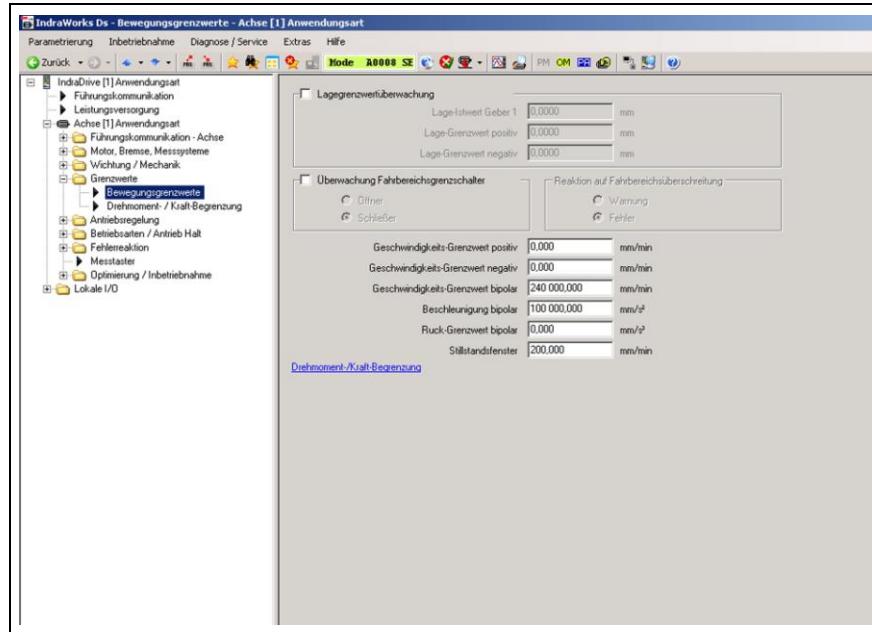
Fig. 9 Travel limits

2. Activate the <Position limit monitor> field

3. Activate the <Travel limit switch> field

4. Configure the travel limit values in the dialog box

3.2.12 Set the parameters for the position and speed controllers

1. In the tree view of the Project Explorer, select <IndraDrive>
➔ <Motion> ➔ <Axis> ➔ <Axis control> ➔·Select <Axis
control settings>
The <Axis control settings> window will open
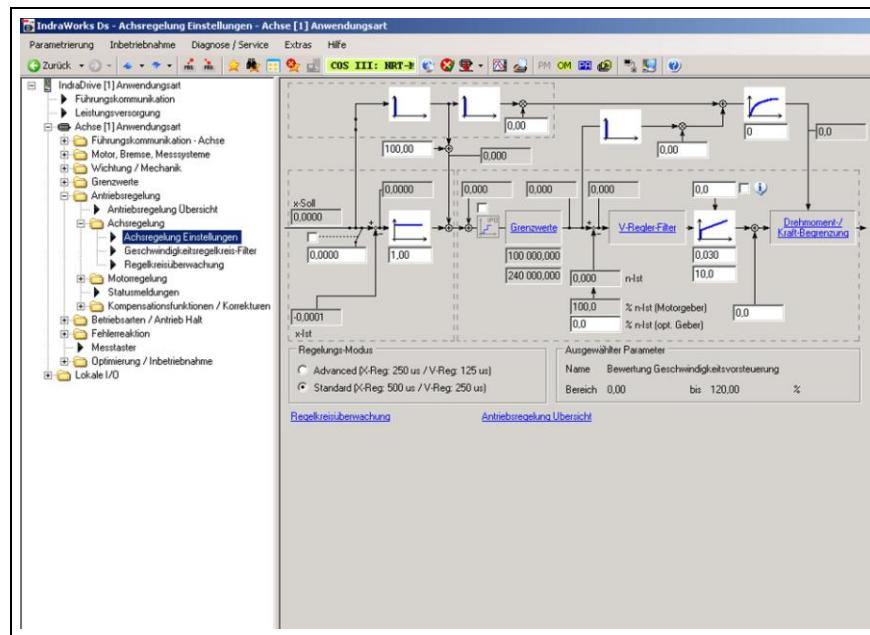
Fig. 10 Axis control settings

2. Make the fine adjustments for the position and speed
controllers.

Note

Set the parameters as specified in the functional description in
the documentation for the Rexroth IndraDrive (chapter <Drive
controller>, section <axis control (closed loop mode)>).

3.2.13   Commutation setting (only up to firmware 16V10)

1. In the tree view of the project Explorer, select <IndraDrive>
➔ <Application type> ➔ <Drive control> ➔ <Motor
control> ➔ <Commutation setting>. The <Commutation
setting> dialog window appears:

Fig. 11 Commutation settings
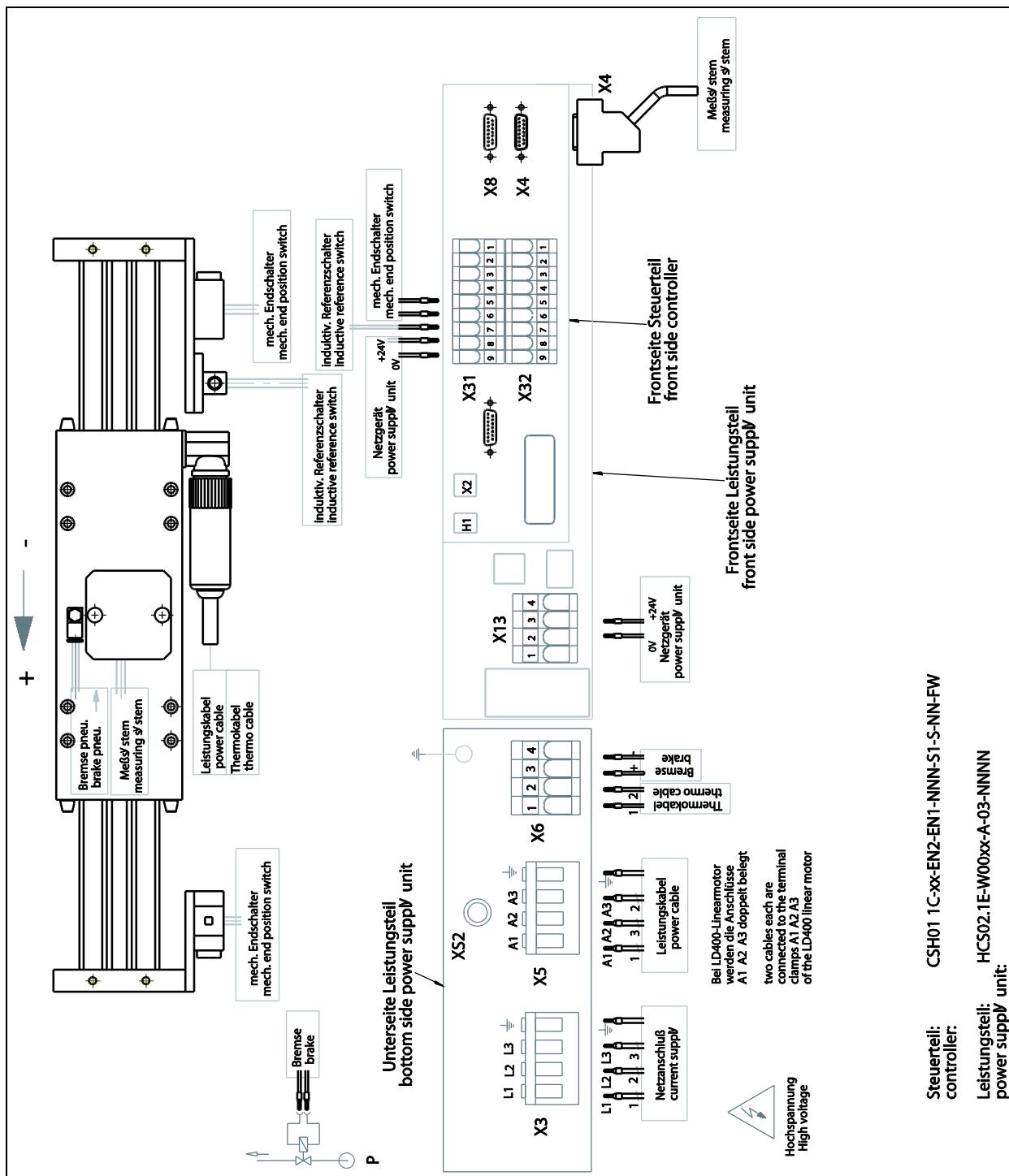
Up to firmware 16V10, a manual modification needs to be
made upon initial commutation of the drive. During its initial
commutation, the drive searches independently for a voltage
vector (amplitude in the test signal (see Fig. 11). In certain
cases, this value is not enough to drive the motor to saturation.
Therefore the value needs to be increased manually. For ex-
ample, if the automatically calculated value is 68V, simply in-
crease it by **40** to 108V. Every value that the controller calcu-
lates should be increased by **40**.

Note
With firmware version 16V12 and higher, manual intervention in
the parameter settings is no longer necessary. The process of
commutation finding was improved in these versions.

4 Appendices

4.1 Connection diagram IndraDrive
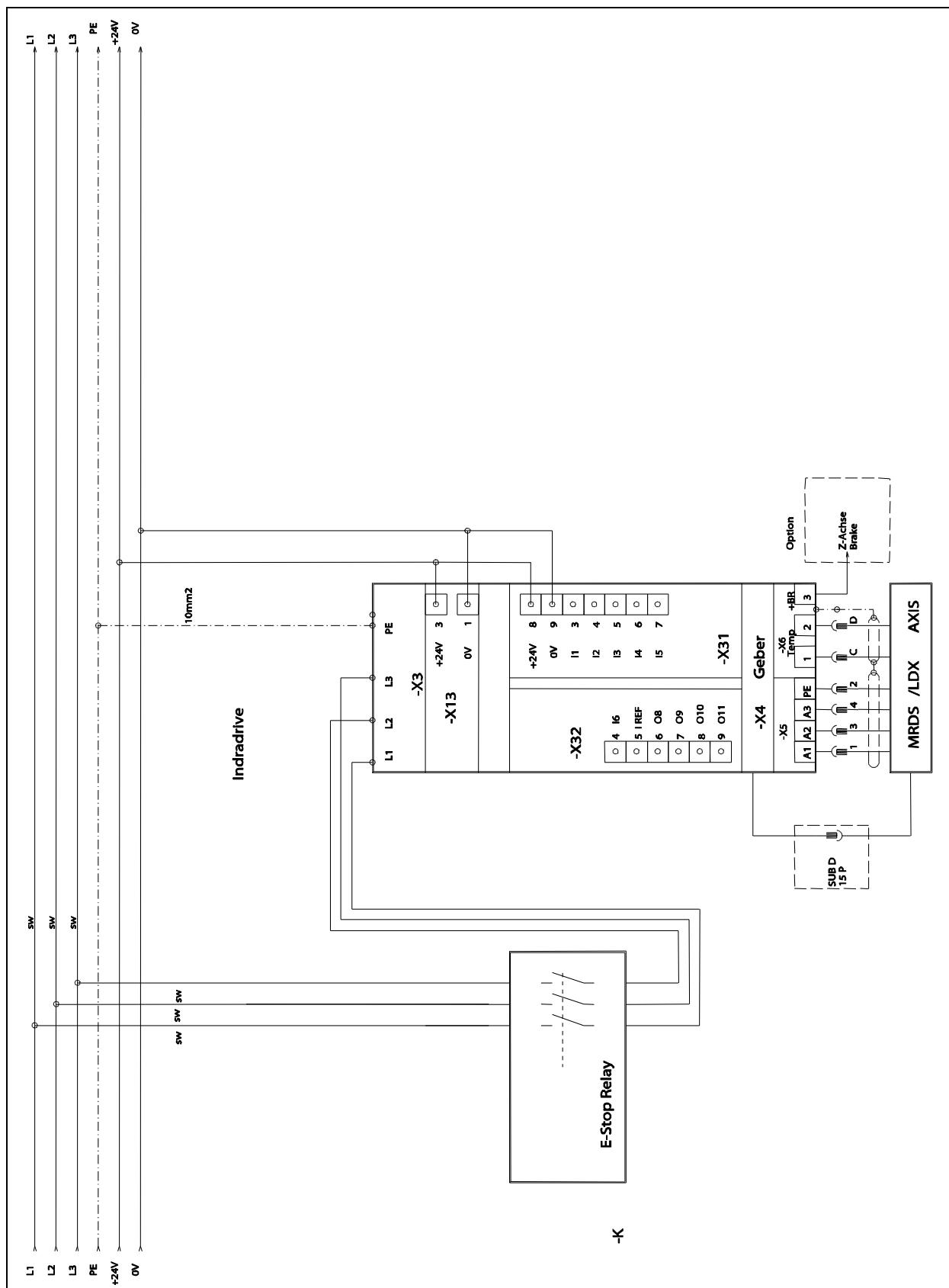
Fig. 12 Connection diagram IndraDrive

4.2 Designation key of files for motors

Fig. 13 Designation key of files for motors

4.3   Overview of motor types

| Motorbez.	Achsname	Dateien	Kurzname	Länge	Breite	Höhe	Wicklung	Gebertyp	Wellentyp	Regler	Steuerteil	Option1	Option2	Version	Suffix
			AAAAAA	BBB	CCC	DDD	EE	F	G	HHH	III	JJJ	KKK	LLL	
MGH-ES-0050		Achsenbez.	LDH005	150	058	037	01	X	X						
	LDH-ES-0050	Motorparameter	LDH005	150	058	037	01	1	X	IDC	NNN	EC	NN	V01	par
	LDH-US-0050		LDH005	150	058	037	01	2	X	IDC	NNN	EC	NN	V01	par
			LDH005	150	058	037	01	3	X	IDC	NNN	EC	NN	V01	par
		Motordaten	LDH005	150	058	037	01						MOT	V01	xls
MGK-ES-0100		Achsenbez.	LDK010	150	085	037	01	X	X						
	LDK-ES-0100	Motorparameter	LDK010	150	085	037	01	1	X	IDC	NNN	EC	NN	V01	par
	LDK-US-0100		LDK010	150	085	037	01	2	X	IDC	NNN	EC	NN	V01	par
			LDK010	150	085	037	01	3	X	IDC	NNN	EC	NN	V01	par
		Motordaten	LDK010	150	085	037	01						MOT	V01	xls
MGK-EL-0200		Achsenbez.	LDK020	250	085	037	01	X	X						
	LDK-EL-0200	Motorparameter	LDK020	250	085	037	01	1	X	IDC	NNN	EC	NN	V01	par
	LDK-UL-0200		LDK020	250	085	037	01	2	X	IDC	NNN	EC	NN	V01	par
			LDK020	250	085	037	01	3	X	IDC	NNN	EC	NN	V01	par
		Motordaten	LDK020	250	085	037	01						MOT	V01	xls
MGF-US-0100		Achsenbez.	LDF010	150	100	037	01	X	X						
	LDF-US-0100	Motorparameter	LDF010	150	100	037	01	1	X	IDC	NNN	EC	NN	V01	par
			LDF010	150	100	037	01	2	X	IDC	NNN	EC	NN	V01	par
			LDF010	150	100	037	01	3	X	IDC	NNN	EC	NN	V01	par
		Motordaten	LDF010	150	100	037	01						MOT	V01	xls
MGF-UL-0200		Achsenbez.	LDF020	250	100	037	01	X	X						
	LDF-UL-0200	Motorparameter	LDF020	250	100	037	01	1	X	IDC	NNN	EC	NN	V01	par
			LDF020	250	100	037	01	2	X	IDC	NNN	EC	NN	V01	par
			LDF020	250	100	037	01	3	X	IDC	NNN	EC	NN	V01	par
		Motordaten	LDF020	250	100	037	01						MOT	V01	xls
MGN-ES-0100		Achsenbez.	LDN010	150	085	037	01	X	X						
	LDN-ES-0100	Motorparameter	LDN010	150	085	037	01	1	X	IDC	NNN	EC	NN	V01	par
	LDN-US-0100		LDN010	150	085	037	01	2	X	IDC	NNN	EC	NN	V01	par
			LDN010	150	085	037	01	3	X	IDC	NNN	EC	NN	V01	par
		Motordaten	LDN010	150	085	037	01						MOT	V01	xls
MGN-EL-0100		Achsenbez.	LDN010	150	085	037	01	X	X						
	LDN-EL-0100	Motorparameter	LDN010	150	085	037	01	1	X	IDC	NNN	EC	NN	V01	par
			LDN010	150	085	037	01	2	X	IDC	NNN	EC	NN	V01	par
			LDN010	150	085	037	01	3	X	IDC	NNN	EC	NN	V01	par
		Motordaten	LDN010	150	085	037	01						MOT	V01	xls
MGN-DS-0200		Achsenbez.	LDN020	150	085	037	01	X	X						
	LDN-DS-0200	Motorparameter	LDN020	150	085	037	01	1	X	IDC	NNN	EC	NN	V01	par
			LDN020	150	085	037	01	2	X	IDC	NNN	EC	NN	V01	par
			LDN020	150	085	037	01	3	X	IDC	NNN	EC	NN	V01	par
		Motordaten	LDN020	150	085	037	01						MOT	V01	xls
MGN-EL-0200		Achsenbez.	LDN020	250	085	037	01	X	X						
	LDN-EL-0200	Motorparameter	LDN020	250	085	037	01	1	X	IDC	NNN	EC	NN	V01	par
	LDN-UL-0200		LDN020	250	085	037	01	2	X	IDC	NNN	EC	NN	V01	par
	LDP-EL-0200		LDN020	250	085	037	01	3	X	IDC	NNN	EC	NN	V01	par
		Motordaten	LDN020	250	085	037	01						MOT	V01	xls
MGN-EG-0300		Achsenbez.	LDN030	350	085	037	01	X	X						
	LDN-EG-0300	Motorparameter	LDN030	350	085	037	01	1	X	IDC	NNN	EC	NN	V01	par
	LDN-UG-0300		LDN030	350	085	037	01	2	X	IDC	NNN	EC	NN	V01	par
	LDP-EG-0300		LDN030	350	085	037	01	3	X	IDC	NNN	EC	NN	V01	par
		Motordaten	LDN030	350	085	037	01						MOT	V01	xls

Fig. 14Assignement of the motors to the drives and files (page 1 of 3)

Motorbez.	Achsname	Dateien	Kurzname	Länge	Breite	Höhe	Wicklung	Gebertyp	Wellentyp	Regler	Steuerteil	Option1	Option2	Version	Suffix
			AAAAAA -	BBB -	CCC -	DDD -	EE -	F -	G -	HHH -	III -	JJJ -	KKK -	LLL	
2x MGN-EL-0200	LDN-DL-0400 LDP-DL-0400	Achsenbez.	LDN040 -	250 -	085 -	037 -	01 -	X -	X -						
		Motorparameter	LDN040 -	250 -	085 -	037 -	01 -	1 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDN040 -	250 -	085 -	037 -	01 -	2 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDN040 -	250 -	085 -	037 -	01 -	3 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
		Motordaten	LDN040 -	250	085	037	01 -						MOT -	V01 .	xls
2x MGN-EG-0300	LDN-DG-0600 LDP-DG-0600	Achsenbez.	LDN060 -	350 -	085 -	037 -	01 -	X -	X -						
		Motorparameter	LDN060 -	350 -	085 -	037 -	01 -	1 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDN060 -	350 -	085 -	037 -	01 -	2 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDN060 -	350 -	085 -	037 -	01 -	3 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
		Motordaten	LDN060 -	350	085	037	01 -						MOT -	V01 .	xls
MGM-ES-0100	LDM-ES-0100	Achsenbez.	LDM010 -	150 -	170 -	037 -	01 -	X -	X -						
		Motorparameter	LDM010 -	150 -	170 -	037 -	01 -	1 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDM010 -	150 -	170 -	037 -	01 -	2 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDM010 -	150 -	170 -	037 -	01 -	3 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
		Motordaten	LDM010 -	150	170	037	01 -						MOT -	V01 .	xls
MGM-ES-0200	LDM-ES-0200 LDM-US-0200	Achsenbez.	LDM020 -	250 -	170 -	037 -	01 -	X -	X -						
		Motorparameter	LDM020 -	250 -	170 -	037 -	01 -	1 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDM020 -	250 -	170 -	037 -	01 -	2 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDM020 -	250 -	170 -	037 -	01 -	3 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
		Motordaten	LDM020 -	250	170	037	01 -						MOT -	V01 .	xls
MGM-EL-0200	LDM-EL-0200	Achsenbez.	LDM020 -	250 -	170 -	037 -	01 -	X -	X -						
		Motorparameter	LDM020 -	250 -	170 -	037 -	01 -	1 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDM020 -	250 -	170 -	037 -	01 -	2 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDM020 -	250 -	170 -	037 -	01 -	3 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
		Motordaten	LDM020 -	250	170	037	01 -						MOT -	V01 .	xls
MGM-EL-0400	LDM-EL-0400 LDM-UL-0400	Achsenbez.	LDM040 -	250 -	170 -	037 -	01 -	X -	X -						
		Motorparameter	LDM040 -	250 -	170 -	037 -	01 -	1 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDM040 -	250 -	170 -	037 -	01 -	2 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDM040 -	250 -	170 -	037 -	01 -	3 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
		Motordaten	LDM040 -	250	170	037	01 -						MOT -	V01 .	xls
MGT-ES-0100	LDT-ES-0100 LDT-US-0100	Achsenbez.	LDT010 -	150 -	250 -	037 -	01 -	X -	X -						
		Motorparameter	LDT010 -	150 -	250 -	037 -	01 -	1 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDT010 -	150 -	250 -	037 -	01 -	2 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDT010 -	150 -	250 -	037 -	01 -	3 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
		Motordaten	LDT010 -	150	250	037	01 -						MOT -	V01 .	xls
MGT-ES-0200	LDT-ES-0200 LDT-US-0200	Achsenbez.	LDT020 -	250 -	250 -	037 -	01 -	X -	X -						
		Motorparameter	LDT020 -	250 -	250 -	037 -	01 -	1 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDT020 -	250 -	250 -	037 -	01 -	2 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDT020 -	250 -	250 -	037 -	01 -	3 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
		Motordaten	LDT020 -	250	250	037	01 -						MOT -	V01 .	xls
MGT-ES-0300	LDT-ES-0300 LDT-US-0300	Achsenbez.	LDT030 -	350 -	250 -	037 -	01 -	X -	X -						
		Motorparameter	LDT030 -	350 -	250 -	037 -	01 -	1 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDT030 -	350 -	250 -	037 -	01 -	2 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDT030 -	350 -	250 -	037 -	01 -	3 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
		Motordaten	LDT030 -	350	250	037	01 -						MOT -	V01 .	xls
MGT-EL-0200	LDT-EL-0200 LDT-UL-0200	Achsenbez.	LDT020 -	250 -	250 -	037 -	01 -	X -	X -						
		Motorparameter	LDT020 -	250 -	250 -	037 -	01 -	1 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDT020 -	250 -	250 -	037 -	01 -	2 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDT020 -	250 -	250 -	037 -	01 -	3 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
		Motordaten	LDT020 -	250	250	037	01 -						MOT -	V01 .	xls
MGT-EL-0400	LDT-EL-0400 LDT-UL-0400	Achsenbez.	LDT040 -	250 -	250 -	037 -	01 -	X -	X -						
		Motorparameter	LDT040 -	250 -	250 -	037 -	01 -	1 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDT040 -	250 -	250 -	037 -	01 -	2 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
			LDT040 -	250 -	250 -	037 -	01 -	3 -	X -	IDC -	NNN -	EC -	NN -	V01 .	par
		Motordaten	LDT040 -	250	250	037	01 -						MOT -	V01 .	xls

Fig. 15 Assignement of the motors to the drives and files (page 2 of 3)

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Motorbez.	Achsname		Kurzname		Länge		Breite		Höhe		Wicklung		Gebertyp		Wellentyp		Regler		Steuerteil		Option1		Option2		Version		Suffix
			AAAAAA	-	BBB	-	CCC	-	DDD	-	EE	-	F	-	G	-	HHH	-	III	-	JJJ	-	KKK	-	LLL	
MGT-EL-0600		Achsenbez.	LDT060	-	350	-	250	-	037	-	01	-	X	-	X	-										
	LDT-EL-0600	Motorparameter	LDT060	-	350	-	250	-	037	-	01	-	1	-	X	-	IDC	-	NNN	-	EC	-	NN	-	V01	. par
	LDT-UL-0600		LDT060	-	350	-	250	-	037	-	01	-	2	-	X	-	IDC	-	NNN	-	EC	-	NN	-	V01	. par
			LDT060	-	350	-	250	-	037	-	01	-	3	-	X	-	IDC	-	NNN	-	EC	-	NN	-	V01	. par
		Motordaten	LDT060	-	350	-	250	-	037	-	01	-										MOT	-	V01	. xls
2x MGT-EL-0400		Achsenbez.	LDT080	-	250	-	250	-	037	-	01	-	X	-	X	-										
	LDT-DL-0800	Motorparameter	LDT080	-	250	-	250	-	037	-	01	-	1	-	X	-	IDC	-	NNN	-	EC	-	NN	-	V01	. par
			LDT080	-	250	-	250	-	037	-	01	-	2	-	X	-	IDC	-	NNN	-	EC	-	NN	-	V01	. par
			LDT080	-	250	-	250	-	037	-	01	-	3	-	X	-	IDC	-	NNN	-	EC	-	NN	-	V01	. par
		Motordaten	LDT080	-	250	-	250	-	037	-	01	-										MOT	-	V01	. xls
2x MGT-EL-0600		Achsenbez.	LDT120	-	250	-	170	-	037	-	01	-	X	-	X	-										
	LDT-DL-1200	Motorparameter	LDT120	-	250	-	170	-	037	-	01	-	1	-	X	-	IDC	-	NNN	-	EC	-	NN	-	V01	. par
			LDT120	-	250	-	170	-	037	-	01	-	2	-	X	-	IDC	-	NNN	-	EC	-	NN	-	V01	. par
			LDT120	-	250	-	170	-	037	-	01	-	3	-	X	-	IDC	-	NNN	-	EC	-	NN	-	V01	. par
		Motordaten	LDT120	-	250	-	170	-	037	-	01	-										MOT	-	V01	. xls

Fig. 16 Assignement of the motors to the drives and files (page 3 of 3)